# Oil and Gas Study

March 22, 2012



#### Overview of Presentation

- 1. Limitations
- 2. Findings
- 3. Areas for further study
- 4. Recommendations
- 5. Questions

#### **Study Limitations**

- Lack of detailed information on extent and richness of shale gas resource in NC
- This carries over to assessment of environmental and economic impacts
- Potential for unknown impacts based on local characteristics
- Timeframe prevented us from considering ongoing work from EPA and others
- No comprehensive study of long-term health effects
- Awaiting information on consumer protection

### Overview of Findings

- Regulations and protections must be in place before any hydraulic fracturing occurs
- NC lacks regulatory standards necessary to manage the impacts of gas production
- For example, NC has no mechanism to regulate water withdrawals for hydraulic fracturing and no standards for disposal of production wastes
- The industry can also have significant impacts on local communities and infrastructure
- Economic benefits to NC are unclear in part because of limited information on the resource
- More research is needed on groundwater, the shale gas resource, and other topics

### Areas for Further Study

- Further research on the extent and richness of the shale gas resource in North Carolina
- Groundwater, particularly the separation between shale resources and groundwater supplies in NC
- Evaluation of the existing state air toxics program and its ability to protect landowners who lease to oil and gas operators
- Appropriate level of severance tax and use of those revenues
- Liability of gas producers for groundwater contamination

#### Baseline Data Collection and Water Management

- Collect pre-drilling baseline data on resource quality
  - Industry: groundwater quality
  - DENR: surface water quality
  - DENR: air quality
    - ➤ Further research on state air toxics program
- 2. Water management
  - Require oil and gas operators to have a Water Management Plan
  - Limit water withdrawals to 20% of the 7Q10

#### Well Construction and Siting

- 3. Enhance existing oil and gas well construction standards to address the additional pressures of hydraulic fracturing and horizontal drilling
- 4. Develop setback requirements and identify areas where oil and gas activities should be prohibited.
  - Existing setbacks for impervious surfaces
    - ➤ Water supply watersheds, wetlands, floodplains, stormwater programs, high quality waters, etc.
  - Protect neighbors
    - Property boundaries, safety hazards, noise, etc.

#### State Stormwater Management Program

- 5. Develop a state stormwater regulatory program for oil and gas drilling sites
  - Potential for disturbing large amounts of land
  - Oil and gas activities have a federal exemption from NPDES stormwater requirements
  - Requirements for stormwater permitting, inspections and compliance activities

#### Waste Management Standards

- 6. Develop specific standards for management of oil and gas wastes
  - Develop a regulatory program to address the unique characteristics of oil and gas solid wastes during transportation, on-site storage and final disposal
  - Prohibit land application of oil and gas solid waste and wastewater
  - Maintain the state's prohibition on underground injection of wastewater due to NC's unsuitable geology and seismic risks
  - For wastewater, encourage 1) recycling and reuse of hydraulic fracturing fluids, 2) pretreatment, and 3) centralized waste treatment facilities

### **Hydraulic Fracturing Constituents**

#### 7. Require:

- Full disclosure of hydraulic fracturing chemicals and constituents to regulatory agencies, and
- Public disclosure of hydraulic fracturing chemicals, except for trade secrets, through FracFocus or state agency website
- 8. Prohibit the use of diesel fuel in hydraulic fracturing fluids

#### Data Management

- 9. Develop a robust data management system to:
  - Include GIS capabilities
  - Store baseline water and air quality data
  - Track production for royalties / severance tax
  - Facilitate public disclosure of data
  - Provide electronic permitting to the industry
  - Enable effective permitting, inspection and enforcement

#### **Emergency Response**

- 10. Ensure state agencies, local first responders and industry are prepared to respond to a well blowout, chemical spill or other emergency
  - Oil and gas operators should be required to develop emergency response plans, including
    - ➤ Wild will qualified person on site at all times
    - 911 addressing of well locations
  - Identify funding to support local governments that will need to train local emergency services providers
  - Encourage the Department of Labor to review its readiness to inspect drilling sites and enforce OSHA standards for oil and gas

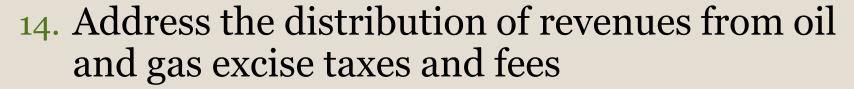
#### Modern Oil & Gas Regulatory Program

- 11. Develop a modern oil and gas regulatory program while preventing physical and economic waste of oil and gas resources
  - Authorize DENR to establish complete regulator program, including:
    - ▼ Well pad density requirements
    - On-site regulatory agency inspections during cementing
    - Funding for rigorous oversight and regular inspections
    - Broaden authority for use of performance bonds
    - State water quality standards for hydraulic fracturing constituents

### **Environmental Permitting in DENR**

- 12. Keep environmental permitting in DENR where it will benefit from the expertise of state geological staff and the ability to coordinate air, land and water quality permitting
- 13. Develop a coordinated permitting process

#### Distribution of Revenues



- Severance tax and program fee revenue should fund:
  - ▼ The administration of the oil and gas program
  - Conservation initiatives
  - Reclamation and remediation
  - ▼ Local government infrastructure
- Conduct further study on the appropriate severance tax rate for NC
- Assess an annual fee to perform inspections of oil and gas sites

#### **Local Governments**

- 15. Identify a source of funding for repair of roads damaged by truck traffic and heavy equipment
  - Ask NCDOT to study this issue
- 16. Clarify the extent of local government regulatory authority over oil and gas activities
  - Models exist in other states for sharing authority between state and local government
- 17. Complete additional research on impacts to local governments and local infrastructure
  - Ask the School of Government, the League of Municipalities, the Association of County Commissioners, or others for research assistance

#### **Economic Impacts**

# 18. Complete additional research on potential economic impacts

- In draft report, economic impacts section does not consider site preparation, leasing of land, hydraulic fracturing, or extraction, production or transmission of gas
- Data quality issues prevented further study
- Follow-on analysis with better data is recommended

#### **Address Liability**

- 19. Address the natural gas industry's liability for environmental contamination caused by exploration and development, particularly for groundwater contamination
  - We recommend that the General Assembly study this issue further

### **Public Participation**

# 20. Provide additional public participation opportunities

- Public comments received through April 1 will be used in the development of the final report
- Use technical advisory groups to develop specific requirements for an oil and gas program

## Public Input

- Public Meetings (March 20 in Sanford and March 27 in Chapel Hill)
- Written Comments Accepted through April 1, 2012
  - Email to: Shale\_Gas\_Comments@ncdenr.gov
  - Mail to: NCDENR, attn: Trina Ozer
    1601 MSC
    Raleigh, NC 27699
- Get updates
  - Send an email to: DENR\_Shale\_Gas@ncdenr.gov
  - Visit http://portal.ncdenr.org/web/guest/shale-gas
- Final report due to General Assembly on May 1, 2012

Questions?